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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/702,292	10/30/2000	Wen-Yin Liu	MS1-604US	1425

22801 7590 06/15/2004

LEE & HAYES PLLC  
421 W RIVERSIDE AVENUE SUITE 500  
SPOKANE, WA 99201

EXAMINER

TO, BAOQUOC N

ART UNIT PAPER NUMBER

2172

DATE MAILED: 06/15/2004

14

Please find below and/or attached an Office communication concerning this application or proceeding.

*h*



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## NOTICE OF ALLOWANCE AND FEE(S) DUE

22801 7590 05/21/2004  
LEE & HAYES PLLC  
421 W RIVERSIDE AVENUE SUITE 500  
SPOKANE, WA 99201

EXAMINER	
TO, BAOQUOC N	
ART UNIT	PAPER NUMBER
2172	
DATE MAILED: 05/21/2004	

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/702,292	10/30/2000	Wen-Yin Liu	MS1-604US	1425

TITLE OF INVENTION: IMAGE RETRIEVAL SYSTEMS AND METHODS WITH SEMANTIC AND FEATURE BASED RELEVANCE FEEDBACK

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1330	\$0	\$1330	08/23/2004

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. **PROSECUTION ON THE MERITS IS CLOSED.** THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN **THREE MONTHS** FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. **THIS STATUTORY PERIOD CANNOT BE EXTENDED.** SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE REFLECTS A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE APPLIED IN THIS APPLICATION. THE PTOL-85B (OR AN EQUIVALENT) MUST BE RETURNED WITHIN THIS PERIOD EVEN IF NO FEE IS DUE OR THE APPLICATION WILL BE REGARDED AS ABANDONED.

### HOW TO REPLY TO THIS NOTICE:

#### I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status is changed, pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above and notify the United States Patent and Trademark Office of the change in status, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check the box below and enclose the PUBLICATION FEE and 1/2 the ISSUE FEE shown above.

☐ Applicant claims SMALL ENTITY status.  
See 37 CFR 1.27.

II. PART B - FEE(S) TRANSMITTAL should be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). Even if the fee(s) have already been paid, Part B - Fee(s) Transmittal should be completed and returned. If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

**IMPORTANT REMINDER:** Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

# PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail**

**Mail Stop ISSUE FEE**  
**Commissioner for Patents**  
**P.O. Box 1450**  
**Alexandria, Virginia 22313-1450**  
**or Fax (703) 746-4000**

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CURRENT CORRESPONDENCE ADDRESS (Note: Legibly mark-up with any corrections or use Block 1)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

22801 7590 05/21/2004  
**LEE & HAYES PLLC**  
**421 W RIVERSIDE AVENUE SUITE 500**  
**SPOKANE, WA 99201**

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I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/702,292	10/30/2000	Wen-Yin Liu	MS1-604US	1425

**TITLE OF INVENTION: IMAGE RETRIEVAL SYSTEMS AND METHODS WITH SEMANTIC AND FEATURE BASED RELEVANCE FEEDBACK**

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1330	\$0	\$1330	08/23/2004

EXAMINER	ART UNIT	CLASS-SUBCLASS
TO, BAOQUOC N	2172	707-003000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1	_____
2	_____
3	_____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. Inclusion of assignee data is only appropriate when an assignment has been previously submitted to the USPTO or is being submitted under separate cover. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent); ☐ individual ☐ corporation or other private group entity ☐ government

4a. The following fee(s) are enclosed:

- ☐ Issue Fee
- ☐ Publication Fee
- ☐ Advance Order - # of Copies \_\_\_\_\_

4b. Payment of Fee(s):

- ☐ A check in the amount of the fee(s) is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized by charge the required fee(s), or credit any overpayment, to Deposit Account Number \_\_\_\_\_ (enclose an extra copy of this form).

Director for Patents is requested to apply the Issue Fee and Publication Fee (if any) or to re-apply any previously paid issue fee to the application identified above.

(Authorized Signature)	(Date)
<p>NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.</p> <p>This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Alexandria, Virginia 22313-1450. <b>DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Alexandria, Virginia 22313-1450.</b></p> <p>Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.</p>	

TRANSMIT THIS FORM WITH FEE(S)



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09/702,292	10/30/2000	Wen-Yin Liu	MS1-604US	1425
22801	7590	05/21/2004	EXAMINER	
LEE & HAYES PLLC 421 W RIVERSIDE AVENUE SUITE 500 SPOKANE, WA 99201			TO, BAOQUOC N	
			ART UNIT	PAPER NUMBER
			2172	

DATE MAILED: 05/21/2004

## Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 282 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 282 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) system (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (703) 305-1383. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at (703) 305-8283.

# Notice of Allowability

Application No.

09/702,292

Examiner

Baoquoc N To

Applicant(s)

LIU ET AL.

Art Unit

2172

13/D

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 05/13/04.
2. ☒ The allowed claim(s) is/are 21-15,20,22-23,28-35,37 and 39-42.
3. ☒ The drawings filed on 30 October 2000 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

## Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

JEAN M. CORRIELUS  
PRIMARY EXAMINER



### DETAILED ACTION

1. Claims 2-41 are in this application, claims 24-26 and 36 are canceled by the examiner amendment, claims 2-15, 20, 22-23, 28-35, 37 and 39-42 are pending in this application.

### EXAMINER'S AMENDMENT

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Emmanuel Rivera on 05/13/04.

Please ~~cancel~~ these claims 24-26 and 36.

Please delete claim [2], replace with "2. A method comprising:  
initiating a search for images based on at least one query keyword in a query;  
identifying, during the search, first images having associated keywords that match the query keyword, and second images that contain low-level features similar to those of the first images identified as matching the query keyword, wherein the low-level features comprise color, shape, and texture and the low-level features do not match the search query;

ranking the first and second images;

presenting the first and second images to a user; and

receiving feedback from the user as to whether the first and second images are relevant to the query further comprising:

assigning a large weight to an association between the query keyword and the images deemed relevant by the user and/or assigning a small weight to an association between the query keyword and the example image.”

Please delete claim [4], replace with “4. A method comprising:

initiating a search for images based on at least one query keyword in a query;

identifying, during the search, first images having associated keywords that match the query keyword, and second images that contain low-level features similar to those of the first images identified as matching the query keyword wherein the low-level features comprise color, shape and texture and the low-level features do not match the search query;

presenting the first and second images to a user;

monitoring feedback from the user as to which of the first and second images are relevant to the query; and

receiving feedback from the user as to whether the first and second images are relevant to the query comprising:

assigning a large weight to an association between the query keyword and the images deemed relevant by the user and/or assigning a small weight to an association between the query keyword and the example image.”

Please cancel claim [5], replace with “5. A method comprising:

initiating a search for images based on at least one query keyword in a query;

identifying, during the search, first images having associated keywords that match the query keyword, and second images that contain low-level features similar to those of the first images identified as matching the query keyword wherein the low-level features comprise color, shape, and size and the low-level features do not match the search query;

presenting the first and second images to a user;

receiving feedback from the user as to whether the first and second images are relevant to the query;

learning how the first and second images are identified based on the feedback from the user; and

receiving feedback from the user as to whether the first and second images are relevant to the query further comprising:

assigning a large weight to an association between the query keyword and the images deemed relevant by the user and/or assigning a small weight to an association between the query keyword and the example image."

Please delete claim [12], replace with "12. A method comprising:

permitting entry of both keyword-based queries and content-based queries;  
finding a first set of images using semantic-based image retrieval and a second set of images using low-level feature-based image retrieval based on the first set of images wherein the low-level features comprise color, shape and texture and the low-level features do not match the semantic-based and the low-level features do not match the keyword-based or content-based;



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presenting the images to a user so that the user can indicate whether the images are relevant;

conducting semantic-based relevance feedback and low-level feature-based relevance feedback in an integrated fashion; and

receiving feedback from the user as to whether the first and second images are relevant to the query further comprising:

assigning a large weight to an association between the query keyword and the images deemed relevant by the user and/or assigning a small weight to an association between the query keyword and the example image.”

Please delete claim [20], replace with “20. A method comprising:

identifying the set of images from the presenting retrieved using the at least one keyword and second images that contain low-level features similar to those of the first images identified as matching the at least one keyword, wherein the low-levels features comprise color, shape and texture and the low-level features do not match the search query;

presenting a result set of images that are returned from an image retrieval search of a query having at least one keyword;

monitoring feedback from a user as to whether the images in the result set are relevant to the query;

in an event that the user selects at least one image as being relevant to the query, associating the keyword in the query with the selected image to form a first

keyword-image association and assigning a comparatively large weight to the first keyword-image association; and

in an event that the user identifies an example image for refinement of the search, associating the keyword in the query with the example image to form a second keyword-image association and assigning a comparatively small weight to the second keyword-image association.”

Please delete claim [28], replace with “28. An image retrieval system comprising:  
a query handler to handle both keyword-based queries having one or more search keywords and content-based queries having one or more low-level features of an image; and

a feature and semantic matcher to identify at least one of (1) first images having keywords that match the search keywords from a keyword-based query, and (2) second images having low-level features similar to the low-level features of a content-based query based on the first images, wherein the feature and semantic matcher ranks the images, and the low-level features comprise color, shape and texture, and the low-level features do not match the keyword-based or content-based;

presenting the first and second images to a user; and

receiving feedback from the user as to whether the first and second images are relevant to the query further comprising:

assigning a large weight to an association between the query keyword and the images deemed relevant by the user and/or assigning a small weight to an association between the query keyword and the example image.”

Please delete claim [32], replace with "32. An image retrieval system comprising:  
a query handler to handle both keyword-based queries having one or more search keywords and content-based queries having one or more low-level features of an image;

a feature and semantic matcher to identify at least one of (1) first images having keywords that match the search keywords from a keyword-based query, and (2) second images having low-level features similar to the low-level features of a content-based query based on the first images, wherein the low-level features comprise color, shape and texture and the low-level features do not match the keyword-based or the content-based;

a user interface to present the images identified by the feature and semantic matcher to a user, the user interface allowing the user to indicate whether the images are relevant to the query; and

a feedback analyzer to train the image retrieval system based on user feedback as to relevancy, wherein the feedback analyzer to assign a large weight to an association between the query keyword and the images deemed relevant by the user and/or feedback analyzer to assign a small weight to an association between the query keyword and the example image and/or a feedback analyzer to assign a small weight to an association between the search keywords and the example image."

Please delete claim [39], replace with "39. A computer-readable medium having computer-executable instructions that, when executed, directs a computer to:

find a first set of images using both semantic-based image retrieval, and a second set of images using low-level feature-based image retrieval based on the first set of images, wherein the low-level features comprise color, shape and texture and the low-level features do not match the semantic-based or feature-based;

present the images to a user so that the user can indicate whether the images are relevant; and

concurrently conduct semantic-based relevance feedback and low-level feature-based relevance feedback,

wherein the receiving feedback from the user as to whether the first and second images are relevant to the query further comprising:

assigning a large weight to an association between the query keyword and the images deemed relevant by the user and/or assigning a small weight to an association between the query keyword and the example image."

***Allowable Subject Matter***

3. Claims 2-15, 20, 22-23, 28-35, 37 and 39-42 are allowed over prior art made of record.

The following is an examiner's statement of reasons for allowance: None of the non prior art alone or in combination neither teaches nor suggest "initiating a search for images based on at least one query keyword in a query; identifying, during the search, first images having associated keywords that match the query keyword, and second images that contain low-level features similar to those of the first images identified as matching the query keyword, wherein the low-levels features comprise color, shape,

and texture and the low-level features do not match the search query; ranking the first and second images; presenting the first and second images to a user; and receiving feedback from the user as to whether the first and second images are relevant to the query further comprising: assigning a large weight to an association between the query keyword and the images deemed relevant by the user and/or assigning a small weight to an association between the query keyword and the example image."

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

#### ***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Aggarwal et al. (US. Patent No. 6,728,706 B2)      Patent date: 06/03/2003

Fox et al. (US. Patent No. 6,574,632 B2)      Patent date: 03/03/2003

Shevade et al., "an experiential annotation system", Year 2003, ISBA:1-508113, page 91-98.

Lai et al., "PBIR-MM: multimodal image retrieval and annotation", Year 2002, ISBN: 1-58113-620-X, page 421-422.

#### ***Contact information***

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Baoquoc N. To whose telephone number is (703) 305-

Application/Control Number: 09/702,292  
Art Unit: 2172

Page 10

1949 or via e-mail BaoquocN.To@uspto.gov. The examiner can normally be reached on Monday-Friday: 8:00 AM – 4:30 PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached at (703) 305-9790.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

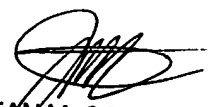
Any response to this action should be mailed to:  
Commissioner of Patents and Trademarks  
Washington, D.C. 20231.

The fax numbers for the organization where this application or proceeding is assigned are as follow:

(703) 872-9306 [Official Communication]

Hand-delivered responses should be brought to:  
Crystal Park II  
2121 Crystal Drive  
Arlington, VA 22202  
Fourth Floor (Receptionist).

Baoquoc N. To  
May 13, 2004

  
JEAN M. CORRIELLUS  
PRIMARY EXAMINER